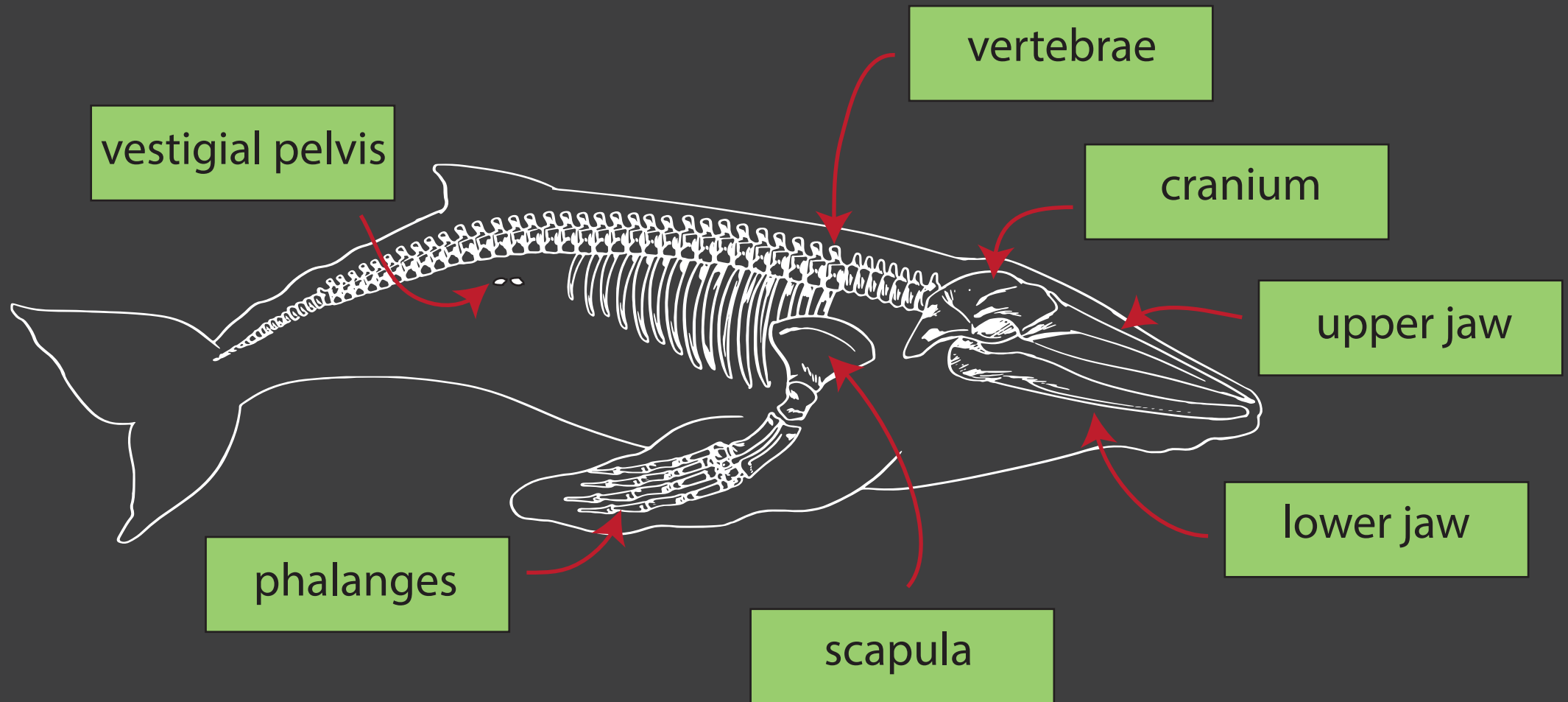




How Have Whales Adapted to
A Life Underwater?

Study*ladder*

Skeleton Structure



Vestigial - body parts that have become small and have lost their function due to evolutionary change.

In whales these are the remnants of a pelvis and hind legs. These bones are floating as they are not attached to the rest of the skeleton. However, they do have a function as they support the muscles of the belly.

Feeding

An elongated skull enables baleen whales to scoop up large amounts of krill and other sea creatures in their mouths.

Ventral pleats located under the lower jaw allow the skin to stretch to accommodate large volumes of water. Their food is then filtered as the water passes between their baleen plates.

Toothed whales have teeth to help them attack and capture prey. Most toothed whales use their teeth to grab their prey then they swallow it whole. Some use their teeth to tear into their prey. Their teeth are generally not used for chewing.

Some toothed whales have teeth on both the upper and lower jaw. Some species, like the sperm whale, only have teeth on the lower jaw. Some species only have a few teeth. The narwhal has just two teeth, one of which is a long spiral tusk.



Swimming

Whales have massive body masses. The buoyancy of the water supports this weight. (A whale's body cannot support this weight on land.)

- The nostrils are located on top of the skull for breathing when surfacing. Nasal passages can be closed for diving.
- Can hold their breath for extended periods of time to enable deep sea diving.
- The bones of the skull are not fused to allow for pressure changes when deep sea diving. This protects their brain.
- The bones of a whale's neck are fused for added strength to aid diving.
- The vertebrae bones toward the tail end of the animal are not fused to allow for more flexible tail movements that are required for swimming.
- Limb bones in the flippers are shortened and fused to provide strength.



Communication

Visibility is low under the water so whales rely on sound to help them communicate.

Toothed whales communicate with each other using a series of high frequency clicks and whistles. They also have the ability to use these sounds for navigation purposes (echolocation.)

Baleen whales do not use echolocation. They produce long, low frequency sounds. Their vocalisations are often referred to as singing.

Their sounds travel great distances under the water, allowing them to locate pod members and signal each other about food sources or danger. Male whales also sing to find a mate and to warn other males to stay away.

Scientists do not fully understand how whales communicate or why their navigation systems fail, resulting in them beaching themselves. It is thought that noise from human activity at sea and electronic devices such as sonar systems may interfere with the whale's ability to navigate their way through the oceans.

